

**Item No. 341S
Paving Fabric**

341S.1 Description

This item shall consist of the furnishing and installation of a fabric underseal in accordance with this specification and as indicated on the Drawings. This work shall consist of a single application of asphalt covered with 1 layer of the fabric with or without sand.

This specification is applicable for projects or work involving either inch-pound or SI units. Within the text, the inch-pound units are given preference followed by SI units shown within parentheses.

341S.2 Submittals

The submittal requirements of this specification item include:

- A. Catalog cuts,
- B. Samples of material selected,
- C. Testing results,
- D. Manufacturer's recommended installation procedures, and
- E. Manufacturer certification of compliance with this specification.

341S.3 Material

A. Tack Coat

Asphalt cement tack coat shall conform to Item No. 301S, "Asphalt, Oils and Emulsions", AC-10.

B. Sand

Washed concrete sand shall be Aggregate Grade No. 1 and shall conform to Item No. 403S, "Concrete for Structures".

C. Paving Fabric

Fabric shall be constructed exclusively of thermoplastic fibers. These fibers may be oriented in the fabric in either a random or an aligned orientation and the fibers may be either continuous or discontinuous throughout the fabric.

The fabric itself shall be mildew resistant, rot proof and shall be designed for use with asphalt cements at temperatures up to 325°F (163°C).

1. Physical Requirements

The fabric supplied shall meet the following requirements when sampled and tested in accordance with the methods specified.

| TEST | METHOD | REQUIREMENT | |
|--|------------------------|-------------|-------------|
| | | Minimum | Maximum |
| Original Physical Properties | | | |
| Fabric weight, oz./sq.yd (kg/m ²). | TxDoT Tex-616-J* | 3.5 (0.12) | 9.0 (0.30) |
| "Apparent elongation" at "breaking load" on warp-wise and fill-wise specimens, percent | ASTM D 5034 Method G** | 50 | 150 |
| "Breaking load", on warp-wise and fill-wise specimens, pounds (Newtons) | ASTM D 5034 Method G** | 80 (356) | — |
| Asphalt retention, gal/yd ² (L/m ²). | | 0.15 (0.68) | 0.60 (2.72) |
| Change in area, % | TxDoT Tex-616-J* | — | ±15 |

* TxDoT Tex-616-J, "Testing of Construction Fibers

** ASTM D 5034, grab method G, "Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)

2. Packaging Requirements

The fabric shall be packaged in rolls of the length and width specified on the Drawings or as directed by the Engineer or designated representative. The fabric itself shall be uniformly wound onto suitable cylindrical forms or cores to aid in handling and unrolling. Each roll of fabric and the form or core upon which it is rolled shall be packaged individually in a suitable sheath, wrapper or container to help protect the fabric from damage due to ultraviolet light and moisture during normal storage and handling.

3. Identification Requirements

Each roll shall be identified by a label or tag securely fixed to the outside of the roll on one end. This label or tag must list the following required information (example of each shown in parenthesis):

- A unique roll number, serially designated (Roll No. 31275)
- Manufacturer lot number or control numbers, if any (Lot 290 Control 6740)
- Name of fabric manufacturer (Afghan Fabrics)
- Date of manufacture (Jan. 16, 1999)
- Brand name of the product ("Fabiweld"),
- Manufacturer's style or catalog designation of the fabric, if any ("300-X")
- Roll width in inches or yards (millimeters or meters) [Width 150 inches (3.8 meters)]
- Roll length in yards (meters) [Length 100 yards (91.4 meters)]
- gross weight of the entire package which is to include fabric, core, wrapping and sheath or container identification tag, etc [Gross 147 pounds (66.6 kilograms)]
- Tare weight of core, wrapping sheath or container identification tag, etc [Tare 18 pounds (8.15 kilograms)]
- Net weight of fabric alone [Net Wt. 129 pounds (58.4 kilograms)]

4. Sampling Requirements

Sampling for testing purposes shall be acquired in accordance with TxDoT Test Method "Tex-735-I, Sampling of Construction Fabrics".

5. Basis for Rejection

If any individual roll fails to meet the fabric weight requirement when the entire roll is weighed then that roll is subject to rejection. If any individual sample, selected at random from 100 rolls (or fraction thereof), fails to meet any specification requirement, then that roll shall be rejected and two additional samples shall be taken, 1 from each of 2 other additional rolls selected at random from the same 100 roll lot (or fraction thereof). If either of these 2 additional samples fails to comply with any portion of the specification, then the entire quantity of rolls represented by that sample shall be rejected.

6. Testing Requirements

Testing shall be conducted in accordance with the test methods identified in this specification item.

7. Manufacturers Certification

The manufacturer will furnish certification of compliance with the specifications with each batch of rolls.

341S.4 Equipment

A. Asphalt Distributor

A hydrostatic type distributor shall be used which is capable of spraying the asphaltic binder at the temperature and application rate specified on the Drawings or as directed by the Engineer or designated representative. The Contractor shall provide all necessary facilities for determining the temperature of the asphaltic material. The distributor shall apply the asphalt cement evenly and smoothly under a pressure necessary for proper distribution. It must be adjustable to give a uniform spray pattern over the entire width of application.

The distributor shall be equipped with a hand spray with only 1 nozzle. The hand spray must be easily controlled and have a positive shut off valve. Hand spraying shall be kept to a minimum and limited to areas where a distributor cannot be used.

B. Fabric Handling Equipment

The fabric may be placed with machine laydown equipment or by manual method. A length of A.S.A. standard 1-inch (25 mm) pipe to handle the roll width being used, together with a suitable roll braking device, shall be used for the manual method.

C. Asphalt Storage and Handling Equipment

All equipment used in storing or handling asphalt cement shall be kept clean and in good working order at all times, and shall be operated in such a manner that there will be no contamination of the asphalt cement. The Contractor shall provide and maintain a recording thermometer to continuously indicate the asphalt cement temperature at the storage-heating unit.

D. Miscellaneous Equipment

Stiff bristle brooms to smooth fabric and scissors for cutting the fabric shall be used. Buckets and squeegees can be used for applying asphalt tack coat to fabric laps and joints. A pneumatic roller to smooth fabric into the asphalt binder may be needed should rain or other unforeseeable conditions cause bubbles or wrinkling.

E. Roller

A light pneumatic tire roller conforming to Item No. 232S, "Rolling (Pneumatic Tire)" shall be used.

341S.5 Construction Methods

A. General

It shall be the responsibility of the Contractor to produce, transport, furnish and place the tack coat and paving fabric in accordance with these specifications and as approved by the Engineer or designated representative.

The tack coat shall not be applied when the air temperature is below 60°F (15°C) and falling, but may be applied when the air temperature is above 50°F (10°C) and rising. In addition the tack coat shall not be applied when the temperature of the surface on which it is to be placed is below 60°F (15°C). The tack coat shall only be placed when the humidity, general weather conditions, temperature and moisture condition of the base, in the opinion of the Engineer or designated representative, are suitable.

Application temperature of the tack coat will be selected within the limits recommended in Standard Specification Item No. 301S, "Asphalts, Oils and Emulsions", as approved by the Engineer or designated representative. The Contractor shall apply the asphalt cement at a temperature within 15°F (8°C) of the temperature selected.

B. Level-up Courses

Placing a level-up course with a spreading and finishing machine, where required, shall precede the placement of the tack coat and paving fabric and shall conform to Standard Specification Item No. 340S, "Hot Mix Asphaltic Concrete Pavement".

C. Surface Preparation

The surface area upon which the fabric layer is to be placed shall be cleaned of dirt, dust or other deleterious material by sweeping or other approved methods.

D. Application of Asphalt Cement

Asphalt cement shall be applied ahead of the fabric placement in widths 6 inches (150 mm) wider than the fabric, except when placed against a curb and gutter.

The asphalt tack coat shall be uniformly applied with the specified distributor. Hand spraying shall be kept to a minimum. Tack coat shall be applied at a rate between 0.15 and 0.28 gallons per square yard (0.68 to 1.27 liters per square meter). The exact rate to be used shall be approved by the Engineer or designated representative. The rate may require slight adjustment as directed by the Engineer or designated representative to prevent an excessive application.

String lines shall be set by the Contractor for alignment as required by the Engineer or designated representative.

E. Fabric Laydown

Immediately upon application of the asphalt cement tack coat, the fabric shall be aligned and carefully broomed and/or rolled onto the fresh asphalt cement tack coat with equipment approved by the Engineer or designated representative. The fabric shall be placed essentially wrinkle free. Air bubbles shall be removed by brooming to insure complete contact with the roadway surface. In the event the initial alignment is not satisfactory and causes the fabric to wrinkle during placement, the fabric shall be cut out and realigned overlapping the previous material and proceeding as before. The replacement fabric shall be lapped 6 inches (150 mm) minimum and additional asphalt cement tack coat shall be applied to satisfy the absorption of the resulting double layer.

If the edges of the fabric tend to be displaced because of air currents, the Engineer or designated representative may require that the edges be secured at 15-foot (5 meter) intervals. In the event this procedure does not prove satisfactory, then work will be suspended until conditions are more favorable.

All fabric transverse joints shall be lapped a minimum of 6 inches (150 mm). Laps shall be in the direction of travel when traffic is allowed directly on the fabric. In lapping joints, the top fabric shall be folded back to allow application of a light coat of asphalt cement. The top fabric shall then be placed back onto the asphalt cement, broomed and squeegeed out smoothly. Rolling and/or brooming the fabric into the asphalt cement at the joints shall be accomplished in such a way that the air bubbles, which form under the fabric will be removed. This may be accomplished by brooming from the center of the fabric toward the outer edges. The fabric shall be neatly cut and contoured at all joints as directed by the Engineer or designated representative.

Adjacent longitudinal rolls of fabric shall overlap a minimum of 4 inches (100 mm). Additional asphalt cement shall be applied to satisfy the absorption of the resulting double layer.

The fabric shall be carefully cut to fit around utility castings.

When required by the Engineer or designated representative, the installed fabric shall be covered with a thin layer of clean sand or clean crusher screenings at a rate sufficient to absorb any excess asphalt cement. If localized areas appear, which indicate excessive amounts of tack coat (bleeding), they shall be blotted with concrete sand.

If for any reason, there is bond loss before application of the HMAC overlay, it shall be corrected by pneumatic rolling until adhesion is restored. If traffic must be temporarily allowed on the membrane prior to the overlay, the fabric shall be lightly sanded (1 to 2 pounds/square yard) for protection during the period of use.

Turning of the laydown machine and other vehicles shall be gradual and kept to a minimum to avoid damage to the fabric membrane. If equipment tires tend to stick to the fabric membrane during the overlay operation, a small quantity of sand shall be broadcast ahead of the paving equipment.

F. Asphaltic Overlay

The Asphaltic Concrete shall conform to Item No. 340S, "Hot Mix Asphaltic Concrete Pavement" and be placed as soon as possible after the paving fabric has been rolled into the tack coat.

G. Manufacturers Recommendations

In other matters not specifically detailed on the Drawings or included herein, the Contractor shall use recommended procedures as prescribed by the manufacturer of the fabric.

341S.6 Measurement

Accepted work performed as prescribed by this item will be measured by the square yard (square meter: 1 square meter equals 1.196 square yards) of surface area covered. Level-up and finished Hot Mix Asphaltic Concrete courses, performed where required, will be measured and paid in conformance with Standard Specification Item No. 340S, "Hot Mix Asphaltic Concrete Pavement".

341S.7 Payment

The work performed as prescribed by this item will be paid for at the unit bid price per square yard for "Paving Fabric". The unit bid price shall include full compensation for: a) preparation of the surface to receive the fabric; b) furnishing and placement of all materials, including asphalt cement tack coat and paving fabric, sand and all other materials and manipulation, labor, tools, equipment and incidentals necessary to complete the work.

Payment will be made under:

Pay Item No. 341S: Paving Fabric Per Square Yard.

End

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| <i>SPECIFIC</i> CROSS REFERENCE MATERIALS |
| Specification 341S, "Paving Fabric" |

American Society for Testing and Materials (ASTM)

| <u>Designation</u> | <u>Description</u> |
|--------------------|---|
| D 5034 | Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test) |
| D 1682 | Test Methods for Breaking Load and Elongation of Textile Fabrics |

Texas Department of Transportation Manual of Testing Procedures

| <u>Designation</u> | <u>Description</u> |
|--------------------|----------------------------------|
| Tex-616-J | Testing of Construction Fabrics |
| Tex-735-I | Sampling of Construction Fabrics |

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|---|
| <i>RELATED</i> CROSS REFERENCE MATERIALS |
| Specification 341S, "Paving Fabric" |

City of Austin Standard Specifications

| <u>Designation</u> | <u>Description</u> |
|--------------------|--|
| Item No. 232S | Rolling (Pneumatic Tire) |
| Item No. 301S | Asphalts, Oils and Emulsions |
| Item No. 340S | Hot Mix Asphaltic Concrete Pavement |
| Item No. 403S | Concrete for Structures |
| Item No. 307S | Tack Coat |
| Item No. 312S | Seal Coat |
| Item No. 315S | Milling Asphaltic Concrete Pavement |
| Item No. 316S | Polymerized Asphalt Concrete Pavement |
| Item No. 801S | Construction Detours |
| Item No. 803S | Barricades, Signs and Traffic Handling |